What is claimed is:

1. A method of forming a SiO_xN_y gate dielectric, comprising:

providing a structure comprising a silicon oxide film formed on a silicon substrate;

heating the structure in an atmosphere comprising NH_3 to incorporate nitrogen into the silicon oxide film; and then

exposing the structure to a plasma comprising a nitrogen source to form a SiO_xN_y gate dielectric on the substrate.

2. The method of claim 1, further comprising annealing the structure after the exposing the structure to the plasma.

3. The method of claim 2, wherein the annealing is performed in an atmosphere comprising O_2.

4. The method of claim 3, wherein the annealing further comprises annealing the structure in an inert or reducing atmosphere before the annealing in an atmosphere comprising O_2.

5. The method of claim 1, wherein the nitrogen source is selected from the group consisting of N_2, NH_3, and combinations thereof.

6. The method of claim 1, wherein heating the structure comprises heating the structure to a temperature of at least about 700°C at a pressure of less than about 100 Torr.

7. The method of claim 1, wherein exposing the structure to a plasma is performed at a pressure of between about 1 mTorr and about 30 mTorr.

8. The method of claim 1, further comprising forming the silicon oxide film by oxidizing a top surface of the silicon substrate.

9. The method of claim 1, wherein substantially no oxygen is incorporated into the structure while heating the structure in an atmosphere comprising NH_3.

10. A method of forming a SiO_xN_y gate dielectric in an integrated processing system, comprising:

heating a structure comprising a silicon oxide film formed on a silicon substrate in an atmosphere comprising NH_3 in a first processing chamber of the integrated processing system to incorporate nitrogen into the silicon oxide film;

transferring the structure to a second processing chamber of the integrated processing system; and then

exposing the structure to a plasma comprising a nitrogen source in the second processing chamber to form a SiO_xN_y gate dielectric on the substrate.

11. The method of claim 10, further comprising:

transferring the structure to a third processing chamber of the integrated processing system; and

annealing the substrate in the third processing chamber.

12. The method of claim 11, further comprising:

introducing the silicon substrate into the integrated processing system; and

forming the silicon oxide film on the substrate in the third processing chamber of the integrated processing system to form the structure comprising a silicon oxide film on a silicon substrate.

13. The method of claim 12, further comprising:

transferring the structure to a fourth processing chamber of the integrated processing system after the annealing the substrate; and

depositing a polysilicon layer on the SiO_xN_y gate dielectric in the fifth processing chamber.

14. The method of claim 11, further comprising:

introducing the silicon substrate into the integrated processing system; and

forming the silicon oxide film on the substrate in a fourth processing chamber of the integrated processing system to form the structure comprising a silicon oxide film on a silicon substrate.

15. The method of claim 14, further comprising:

transferring the structure to a fifth processing chamber external to the integrated processing system after the exposing the structure to the plasma; and

depositing a polysilicon layer on the SiO_xN_y gate dielectric in the fifth processing chamber.

16. The method of claim 11, wherein the annealing is performed in an atmosphere comprising O_2.

17. The method of claim 16, wherein the annealing further comprises annealing the structure in an inert or reducing atmosphere before the annealing in an atmosphere comprising O_2.

18. The method of claim 10, further comprising transferring the structure to a cool down chamber after the heating and before the transferring the structure to a second processing chamber.

19. A SiO_xN_y gate dielectric, formed by a method comprising:

heating a structure comprising a silicon oxide film formed on a silicon substrate in an atmosphere comprising NH_3 to incorporate nitrogen into the silicon oxide film; and then

exposing the structure to a plasma comprising a nitrogen source to form a SiO_xN_y gate dielectric on the substrate.

20. The SiO_xN_y gate dielectric of claim 19, wherein the gate dielectric comprises at least 5% nitrogen.

21. The SiO_xN_y gate dielectric of claim 19, wherein the method further comprises annealing the structure after the exposing the structure to a plasma.

22. The SiO_xN_y gate dielectric of claim 19, wherein substantially no oxygen is incorporated into the structure while heating the structure in an atmosphere comprising NH_3.

23. The SiO_xN_y gate dielectric of claim 19, wherein the nitrogen source is selected from the group consisting of N_2, NH_3, and combinations thereof.

24. The SiO_xN_y gate dielectric of claim 19, wherein the method further comprises forming the silicon oxide film by oxidizing a top surface of the silicon substrate.

25. The SiO_xN_y gate dielectric of claim 19, wherein the method further comprises placing the silicon substrate in an integrated processing system and not removing the structure from the integrated processing system until after the gate dielectric is formed.

26. The SiO_xN_y gate dielectric of claim 25, wherein the method further comprises depositing a polysilicon layer on the substrate, wherein the structure is not removed from the integrated processing system until after the polysilicon layer is deposited.